

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Dayton® Portable Oil-Fired Heater

Description

Dayton Model 3VE53H heater is a 400,000 BTU/Hr heater. This heater uses 1-K Kerosene for combustion, and electricity to run the fan. It is primarily intended for temporary heating of well ventilated buildings under construction, alteration, or repair. This heater may be used in agricultural, industrial and commercial environments.

Specifications

ELECTRICAL SPECIFICATIONS

Model	Electrical Input	Amperage	Fuse	Spark Plug Gap
3VE53H	120V, 60 Hz	4.4	250V/20 amp	.140" (3.5mm)

GENERAL SPECIFICATIONS

Model	Type of Fuel	Input Rating	Pump Pressure	Fuel Tank Capacity	Fuel Consumption	Size L x W x H	Weight Lbs. (kg)
3VE53H	1-K Kerosene	400,000 BTU/Hr	125 PSI	29.0 Gallons	3.0 Gal/Hr	52.5" x 31.4" x 32.8"	150 (68)

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Introduction

Please read this USER'S MANUAL carefully. It will show you how to assemble, maintain and operate this heater safely and efficiently to obtain the full benefits of its many features. **Consumer: retain these instructions for future reference.**

Unpacking

1. Remove all packing items applied to heater for shipment.
2. Remove all items from carton.

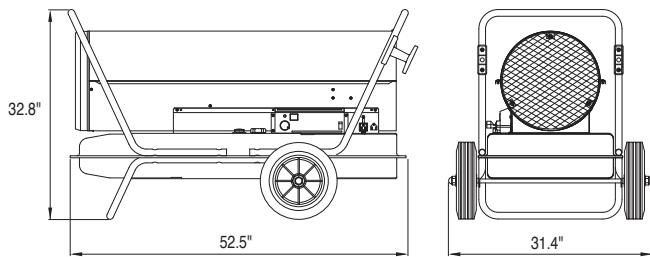


Figure 2 – Heater Dimensions



Figure 1 – Model 3VE53H

3. Check all items for shipping damage. If heater is damaged, promptly inform dealer where you purchased heater.

General Safety Information

DANGER *Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.*

WARNING *Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.*

CAUTION *Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.*

CAUTION *Before using this heater, please read this USER'S MANUAL very carefully. This USER'S MANUAL has been designed to instruct you as to the proper manner in which to assemble, maintain, store, and most importantly, how to operate the heater in a safe and efficient manner.*

CAUTION *Never leave the heater unattended while burning!*



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General Safety Information (Continued)

DANGER *Improper use of this heater can result in serious injury or death from burns, fire, explosion, electrical shock, and/or carbon monoxide poisoning.*

For optimal performance of this heater, it is strongly suggested that 1-K kerosene be used. 1-K kerosene has been refined to virtually eliminate contaminants, such as sulfur, which can cause a rotten egg odor during the operation of the heater. However, #1 or #2 fuel oil (diesel fuel) may also be used if 1-K kerosene is not available. Be advised that these fuels do not burn as clean as 1-K kerosene, and care should be taken to provide more fresh air ventilation to accommodate any added contaminants that may be added to the heated space. Use of #1 or #2 fuel oil will require increased maintenance of unit.

CAUTION *Risk of indoor air pollution!*

- Use this heater only in well ventilated areas! Provide at least a three square foot (2,300 sq cm) opening of outside air for every 100,000 BTU/hr of heater rating.
- People with breathing problems should consult a physician before using the heater.
- Carbon Monoxide Poisoning: Early signs of carbon monoxide poisoning resemble flu-like symptoms such as headaches, dizziness, and/or nausea. If you have these symptoms, your heater may not be working properly.
- Get fresh air at once! Have the heater serviced. Some people are more affected by carbon monoxide than others. These include pregnant

women, those with heart or lung problems, anemia, or those under the influence of alcohol, or at high altitudes.

- Never use this heater in living or sleeping areas.

CAUTION *Risk of Burns/Fire/Explosion!*

- Use 1-K kerosene in this heater. #1 fuel oil is a suitable substitute.
- NEVER use fuels such as gasoline, benzene, paint thinners, or other oil compounds in this heater (RISK OF FIRE OR EXPLOSION).
- NEVER use this heater where flammable vapors may be present.
- NEVER refill the heater's fuel tank while heater is operating or still hot. This heater is EXTREMELY HOT while in operation.
- Keep all combustible materials away from this heater.

Minimum Clearances

Outlet **8 feet (250 cm)**
Sides, Top and Rear **4 feet (125 cm)**

- NEVER block air inlet (rear) or air outlet (front) of heater.
- NEVER use duct work in front or at rear of heater.
- NEVER move or handle heater while still hot.
- NEVER transport heater with fuel in its tank.

This heater is equipped with a thermostat and may start at any time.

- ALWAYS locate heater on a stable and level surface.
- ALWAYS keep children and animals away from heater.

- Bulk fuel storage should be a minimum of 25 ft. from heaters, torches, portable generators, or other sources of ignition.

All fuel storage should be in accordance with federal, state, or local authorities having jurisdiction.

CAUTION *Risk of Electric Shock!*

- Use only the electrical power (voltage and frequency) specified on the model plate of the heater. Use only a three-prong, grounded outlet and extension cord.
- ALWAYS install the heater so that it is not directly exposed to water spray, rain, dripping water, or wind.
- ALWAYS unplug the heater when not in use.

CALIFORNIA RESIDENTS:

This heater produces carbon monoxide, which is listed by the State of California as a reproductive toxin under Proposition 65.

MASSACHUSETTS RESIDENTS:

Massachusetts state law prohibits the use of this heater in any building which is used in whole or in part for human habitation. Use of this heating device in Massachusetts requires local fire dept. permit (M.E.L.C. 148, Section 10A).

CANADIAN RESIDENTS:

Use of this heater shall be in accordance with authorities having jurisdiction and CSA Standard B139.

NEW YORK CITY RESIDENTS:

For use only at construction sites in accordance with applicable NYC codes under NYCFD certificate of approval #5037.

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Product Features

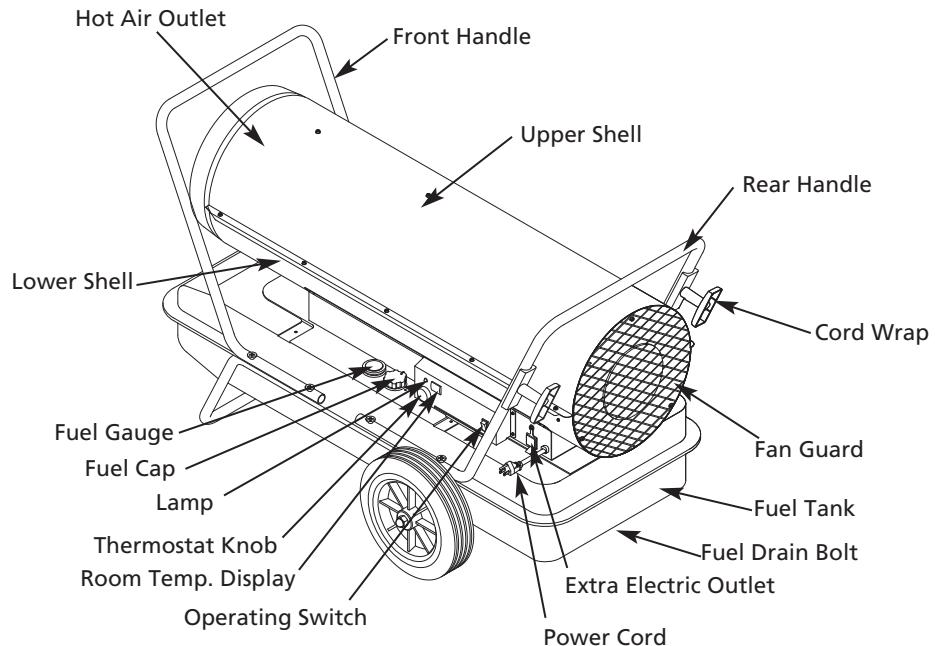


Figure 3 – Model 3VE53H Features

Wheels	Cord Wraps	Screw (L)	Screw (S)	Nut
		Cap Nuts	Bushing	Washers
Hardware Kit Part No: HW-KFA1019				

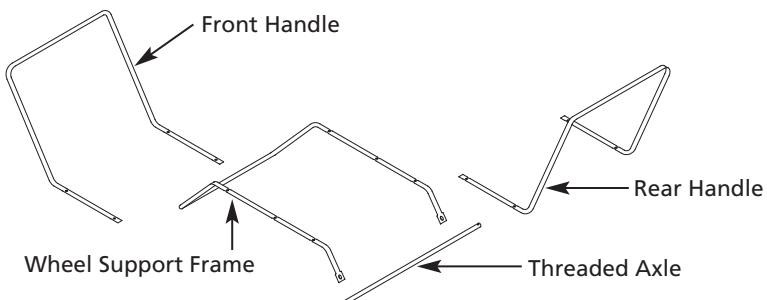


Figure 4 – Component Identification

For Technical Support or Troubleshooting, Call: 1-800-323-0620

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Assembly

TOOLS REQUIRED

- Medium Phillips screwdriver
- 24mm socket or adjustable wrench.

ASSEMBLING WHEEL & HANDLE

1. Slide threaded axle through the rear section of the wheel support frame.
2. Slide one axle bushing on to each side of the axle. Slide one wheel on to each side of the axle. Attach one cap nut on to each side of the threaded axle and tighten well.
3. Place heater on wheel support frame. Make sure air inlet end (rear) of heater is over wheels. Align the holes on fuel tank flange. Insert screws(L) through handles (front and Rear), fuel tank flange, and wheel support frame. Insert screws(S) through rear handle, fuel tank flange, and washer(S) as shown in figure 5 and attach nut finger tight after each screw is inserted.
4. After all screws are inserted, tighten nuts firmly.
5. Align the hole on the rear handle with the mounting hole on the cord wrap.
6. Insert screws through cord wrap, rear handle as shown in Figure 5 and attach nut finger tight after each screw is inserted.
7. After all screws are inserted, tighten nuts firmly.

CAUTION **DO NOT operate heater without support frame fully assembled to tank.**

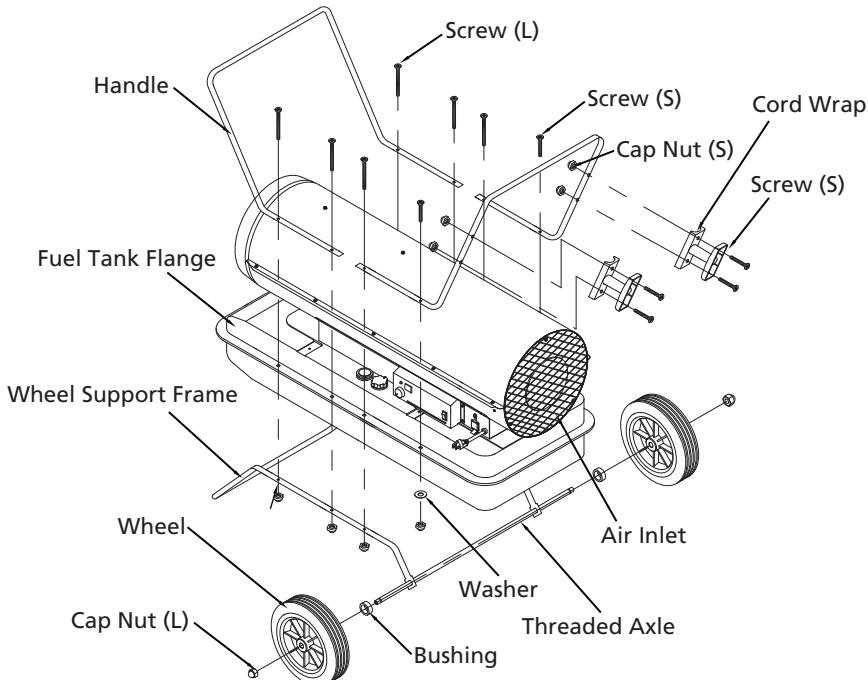


Figure 5 – Wheel and Handle Assembly

KEROSENE (1-K)

For optimal performance of this heater, it is strongly suggested that 1-K kerosene be used. 1-K kerosene has been refined to virtually eliminate contaminants, such as sulfur, which can cause a rotten egg odor during the operation of the heater. However, #1 or #2 fuel oil (diesel fuel) may also be used if 1-K kerosene is not available. Be advised that these fuels do not burn as clean as 1-K kerosene, and care should be taken to provide more fresh air ventilation to accommodate any added contaminants that may be added to the heated space.

NOTE: Kerosene should only be stored in a blue container that is clearly marked "kerosene". Never store kerosene in a red container. Red containers are associated with gasoline.

- NEVER store kerosene in the living space. Kerosene should be stored in a well ventilated area outside the living area.
- NEVER use fuel such as gasoline, benzene, alcohol, white gas, camp stove fuel, paint thinners or other oil compounds in this heater (THESE ARE VOLATILE FUELS THAT CAN CAUSE A FIRE OR EXPLOSION).
- Use 1-K kerosene in this heater. #1 or #2 fuel oils are a suitable substitute.
- NEVER store kerosene in direct sunlight or near a source of heat.
- NEVER use kerosene that has been stored from one season to the next. Kerosene deteriorates over time. OLD KEROSENE WILL NOT BURN PROPERLY IN THIS HEATER.

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Overview of Heater Design

Fuel System: This heater is equipped with a fuel pump (Gear) that pulls fuel through the fuel line connected to the fuel tank and then pushes fuel through a filter and a solenoid valve and out the burner head nozzle.

This fuel is sprayed into the combustion chamber in a fine mist.

"SureFire Ignition": The electronic ignitor sends voltage to a specially designed spark plug.

The spark plug ignites the fuel and air mixture.

The Air System: The heavy duty motor turns a fan that forces air into and around the combustion chamber. Here, the air is heated and then forced out the front of the heater.

THE SAFETY SYSTEM

A. Temperature Limit Control: This heater is equipped with a Temperature Limit Control designed to turn off the heater should the internal temperature rise to an unsafe level. If this device activates and turns your heater off, it may require service.

Internal Shut-Off Temperature +/-10 degrees	Reset Temperature +/-10 degrees
176°F (80°C)	122°F (50°C)

B. Electrical System Protection: This heater's electrical system is protected by a fuse mounted to the PCB Assembly that protects it and other electrical components from damage. If your heater fails to operate, check this fuse first and replace as needed. Refer to Specification chart on page 1.

C. Flame-Out Sensor: Utilizes a photocell to monitor the flame in burn chamber during normal operation. It will cause the heater to shut off should the burner flame extinguish.

FUELING YOUR HEATER

NEVER fill the heater fuel tank in the living space: fill the tank outdoors.

Do not overfill your heater and be sure heater is leveled.

Important notice regarding first ignition of heater:

The first time you light the heater, it should be done outdoors. This allows the oils, etc. used in manufacturing the heater to burn off outside.

WARNING *Never refill fuel tank when heater is operating or still hot.*

Operation VENTILATION

CAUTION *Risk of indoor air pollution. Use heater only in well ventilated areas.*

Provide a fresh air opening of at least twelve square feet.

NOTE: If more heaters are being used, provide a fresh air opening of at least three square feet for each 100,000 BTU/Hr. rating.

TO START HEATER

1. Fill fuel tank with kerosene or No. 1 fuel oil.
2. Attach fuel cap.
3. Plug power cord into three-prong, grounded extension cord. Extension cord must be at least six feet long.

Extension Cord Wire Size Requirements:

- 6 to 100 feet long, use 14 AWG conductor.
- 101 to 200 feet long, use 12 AWG conductor.
- 201 to 300 feet long, use 10 AWG conductor.
- 301 to 400 feet long, use 8 AWG conductor.
- 401 to 500 feet long, use 6 AWG conductor.

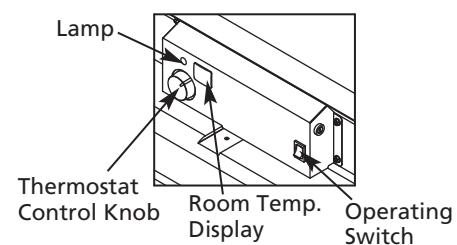


Figure 7 – Control Parts

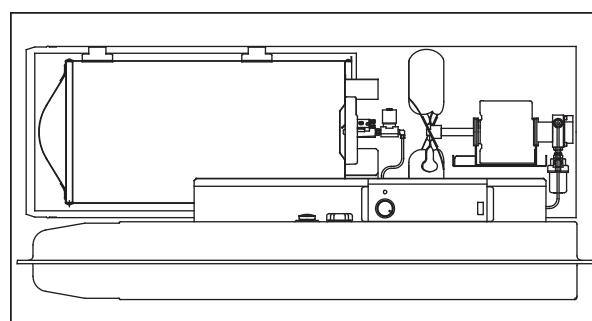


Figure 6 – Overview of Heater Design

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Operation (Continued)

4. Turn "THERMOSTAT CONTROL KNOB" to desired setting (setting range: 40°F-110°F, 9 step) and push operating switch to "ON" position. Power indicator lamp and room temperature display will light and heater will start.

If heater does not start, the thermostat setting may be too low, turn "THERMOSTAT CONTROL KNOB" to higher position to start heater. If heater still does not start, turn operating switch to "OFF" and then to "ON" position (See Figure 7). If heater still does not start, see Troubleshooting Chart on page 15.

NOTE: Room Temp. display indicates as following:

- When room temp. is less than 0°F: "Lo".
- When room temp. is between 0°F and 99°F: Indicates temp. figure.
- When room temp. is more than 99°F: "Hi".

NOTICE : The major electrical components of this heater are protected by a safety fuse mounted to the PCB board. If your heater fails to start, check this fuse first and replace as necessary. You should also check your power source to insure that proper voltage and frequency are being supplied to the heater.

TO STOP HEATER

CAUTION *Never unplug heater while heater is running.*

Heater must go through cooling cycle. The cooling cycle cools the combustion chamber. Damage to heater can occur if combustion chamber is not cooled. Do not restart heater until cooling cycle is complete.

1. Turn operating switch to "OFF". This will cause heater flame to go out. The motor will continue to run during the cooling cycle.

(Room Temp. Display will show "CC" during the cooling cycle) This allows the fan to cool the combustion chamber. When the cooling cycle(approx.1Min) is finished, the motor will stop. Do not unplug heater until cooling cycle is finished.

2. Unplug power cord.
3. To temporarily stop heaters, set thermostat at a temperature lower than air around heater, Heater will cycle back on if air temperature around heater matches thermostat setting.

TO RESTART HEATER

CAUTION *DO NOT restart heater until cooling cycle is finished.*

The cooling cycle cools the combustion chamber.

1. Wait until cooling cycle is finished after stopping heater.
2. Repeat steps under TO START HEATER.

EXTRA ELECTRIC OUTLET

WARNING *SHOCK HAZARD!*

- Always cover electrical outlet when not in use. See Figure 8.
- Don't plug and use an appliance with more than 5A current in this outlet.

LONG-TERM STORAGE OF HEATER

1. Remove fuel drain bolt from rear bottom side of fuel tank using 3/4" socket or adjustable wrench and drain.
2. Using a small amount of kerosene, swirl and rinse the inside of the tank.

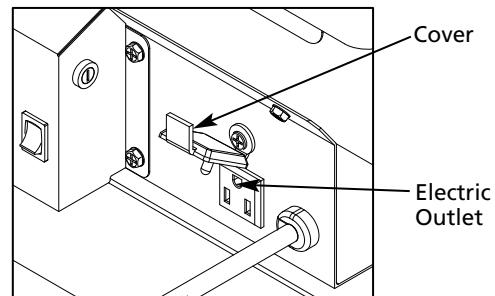


Figure 8 – Extra Electric Outlet

NEVER mix water with the kerosene as it will cause rust inside the tank.

IMPORTANT : Do not store kerosene over summer months for use during next heating season. Using old fuel could damage heater.

3. Reinstall Fuel Drain Bolt to Fuel tank and tighten firmly using 3/4" socket or adjustable wrench.

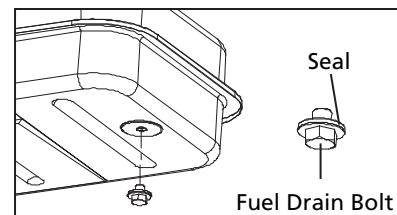


Figure 9. Drain Bolt

IMPORTANT : Before reinstalling the fuel drain bolt, make sure the seal is on the bolt. If the seal is not used the bolt cannot be installed correctly and the fuel tank will leak.

4. Store heater in dry well ventilated area. Make sure storage place is free of dust and corrosive fumes.
5. Store the heater in the original box with the original packing material and keep the USER'S MANUAL with the heater.

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Maintenance

WARNING

Never service heater while it is plugged in or while hot!

NOTE: USE ORIGINAL EQUIPMENT REPLACEMENT PARTS. Use of third-party or other alternate components will void warranty and may cause unsafe operating conditions.

UPPER SHELL REMOVAL

- Remove screws along each side and top of heater using medium Phillips screwdriver.

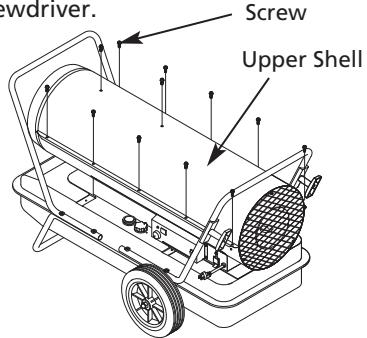


Figure 10 – Upper Shell Removal

FAN BLADES AND AIR DEFLECTOR

CLEAN EVERY SEASON OR AS NEEDED.

- Remove upper shell.
- Clean fan blades and air deflectors using soft cloth moistened with kerosene or solvent.
- Dry fan blades and air deflectors thoroughly.
- Reinstall upper shell.

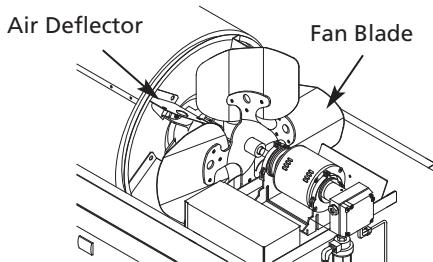


Figure 11 – Fan Blades and Air Deflectors

SPARK PLUG

CLEAN AND REGAP EVERY 600 HOURS OF OPERATION OR REPLACE AS NEEDED.

- Remove upper shell.
- Remove spark plug wire from spark plug (See Figure 12).
- Remove spark plug from burner head using medium Phillips screwdriver.
- Clean and regap spark plug electrodes to .140" (3.5 mm) gap.
- Reinstall spark plug into burner head.
- Attach spark plug wire to spark plug.
- Reinstall upper shell.

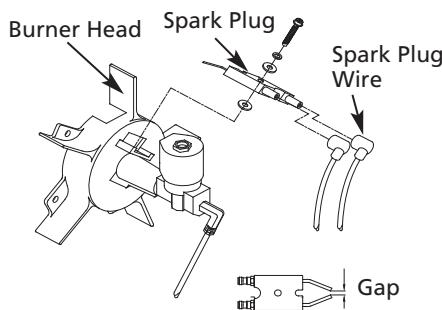


Figure 12 – Spark Plug

NOZZLE

REMOVE DIRT IN NOZZLE AS NEEDED.

- Remove upper shell.
- Remove fuel line from solenoid valve using 1/4" wrench.
- Remove spark plug wire from spark plug.
- Remove spark plug from burner head using medium Phillips screwdriver.
- Remove five screws using medium Phillips screwdriver and remove burner head from combustion chamber.
- Carefully remove nozzle from burner head using 5/8" socket wrench.
- Blow compressed air through face of nozzle (this will remove any dirt).
- Inspect nozzle for damage. If damaged or clogged, replace nozzle.
- Make sure plug is in place on burner head.
- Reinstall nozzle into burner head and tighten firmly (175-200 inch-pounds).
- Reinstall spark plug into burner head.
- Attach burner head to combustion chamber.
- Attach spark plug wire to spark plug.
- Attach fuel line to solenoid valve. Tighten firmly.
- Replace upper shell.

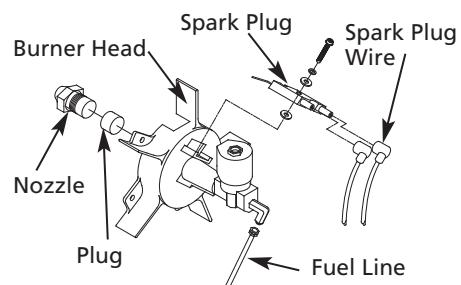


Figure 13 – Nozzle

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Maintenance (Continued)

PHOTOCELL

CLEAN PHOTOCELL ANNUALLY OR AS NEEDED.

- Remove upper shell (See page 7).
- Remove photocell from photocell bracket and disconnect photocell from connector.
- Clean photocell lens with cotton swab.
- Inspect photocell for damage. If damaged, replace photocell.

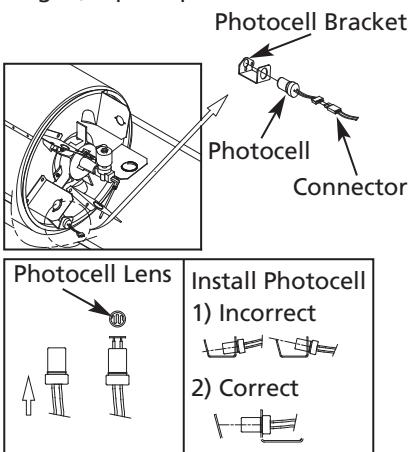


Figure 14 – Clean Photocell Lens

FUEL LINES

TIGHTEN FUEL LINES ANNUALLY OR AS NEEDED.

- Remove upper shell (See page 7).
- Use 1/4" wrench and tighten fuel line (A) at solenoid valve and at pump (See Figure 16).
- Remove fan guard (See Figure 16).
- Use 3/8" wrench and tighten fuel line (B) at pump and pump fuel filter assembly.
- Reinstall fan guard.

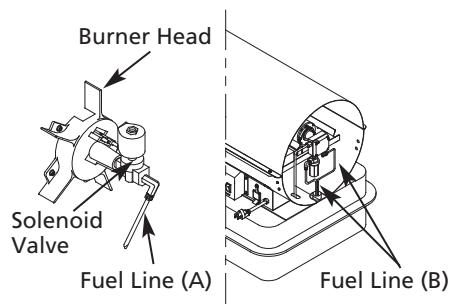


Figure 15 – Tighten Fuel Line

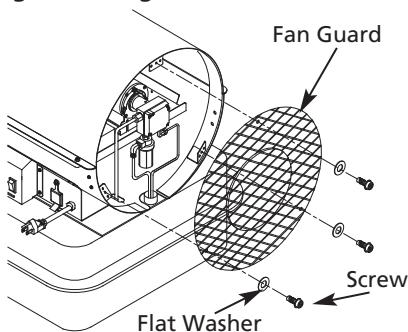


Figure 16 – Remove Fan Guard

FUEL FILTER

CLEAN TWICE PER HEATING SEASON OR AS NEEDED.

Tank Fuel Filter

- Remove fan guard (See Figure 16).
- Disconnect fuel line (B) from pump and pump fuel filter assembly with 3/8" wrench (See Figure 17).
- Remove two screws that fix bracket-filter to shell lower and remove bracket-filter.
- Carefully pry fuel filter loose from fuel tank with flat end of screwdriver.
- Wash fuel lines and fuel filter with clean kerosene.
- Replace fuel filter into fuel tank.
- Replace bracket-filter to shell lower.
- Connect fuel lines (B) to pump and pump fuel filter assembly.
- Reinstall fan guard.

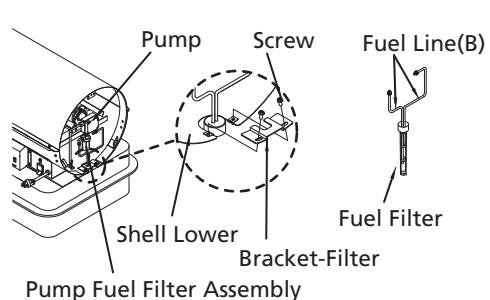


Figure 17 – Remove Tank Fuel Filter

Pump Fuel Filter

- Remove fan guard (See Figure 16).
- Unscrew filter bottom clockwise from filter top with adjustable pliers.
- Remove fuel filter, gasket, magnet from filter bottom (See Figure 18).
- Wash filter bottom with clean kerosene.
- Wipe inside of filter bottom dry with clean cloth.
- Wash fuel filter in clean kerosene.
- Remove dirt attached to magnet.
- Put clean magnet, fuel filter and gasket back in filter bottom.
- Tighten firmly.

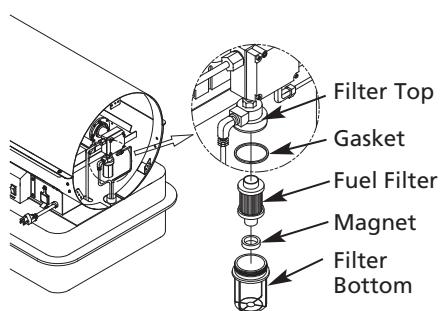


Figure 18 – Fuel Pump Filter

PUMP PRESSURE ADJUSTMENT

- Remove pressure gauge plug from pump with 1/8" Allen wrench.
- Install accessory pressure gauge to pressure gauge port (See Figure 19).

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Maintenance (Continued)

- Start heater (See Operation, Page 5). Allow motor to reach full speed.
- Adjust pressure (Using small flat blade screwdriver). Turn pressure adjustment screw clockwise to increase pressure. Turn screw counterclockwise to decrease pressure.
- Set pump pressure at 125 PSI.
- Stop heater (See Operation, Page 6).
- Remove pressure gauge. Replace pressure gauge plug in pressure gauge port.

NOTE: Use only original equipment replacement parts. Use of alternate or third party components will void warranty and may cause an unsafe operating condition.

REPLACING FUSE

NOTE: The heater is fuse protected. If your heater fails to ignite, DO NOT RETURN YOUR HEATER TO THE STORE.

Please follow the simple instructions below to inspect and change the fuse.

WARNING *SHOCK HAZARD. To prevent personal injury, unplug the power cord before replacing fuse.*

- Unplug heater.
- Turn Fuse Cover COUNTERCLOCKWISE 45° using a flat blade screwdriver and remove Fuse from Fuse Holder.
- Replace Fuse with enclosed fuse.

WARNING *FIRE HAZARD. To avoid fire, Do not substitute with a higher or lower current rating.*

- Turn Fuse Cover CLOCKWISE 45° using a flat blade screwdriver while slightly pushing.

NOTE: Specified fuse rating: AC 250/20A

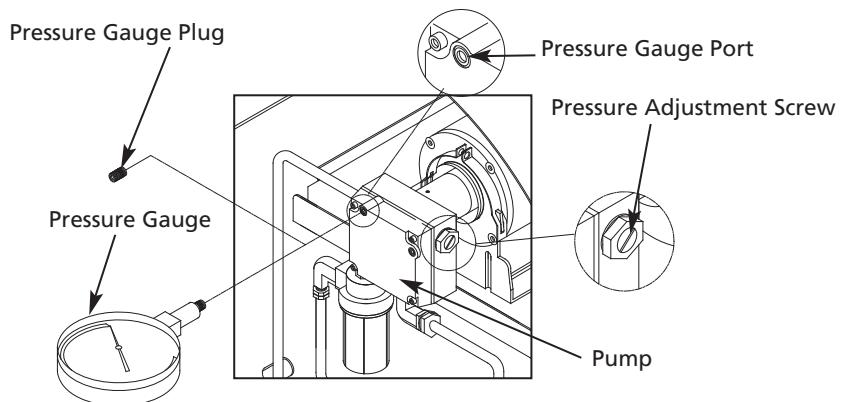


Figure 19 – Adjusting Pump Pressure

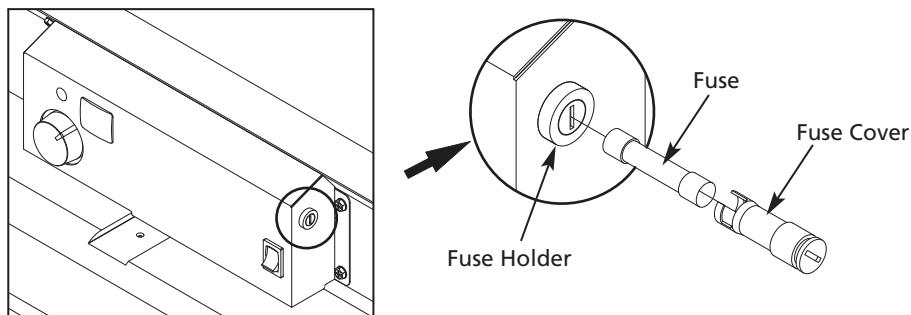


Figure 20 – Replacing Fuse

Wiring Diagram

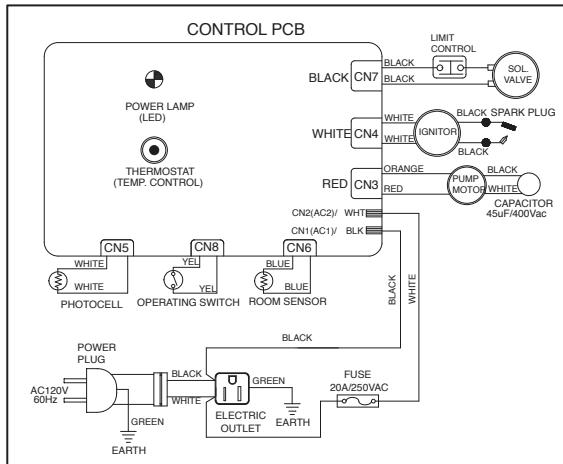


Figure 21 – Wiring Diagram Model 3VE53H

For Repair Parts, call 1-800-323-0620

24 hours a day – 365 days a year

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

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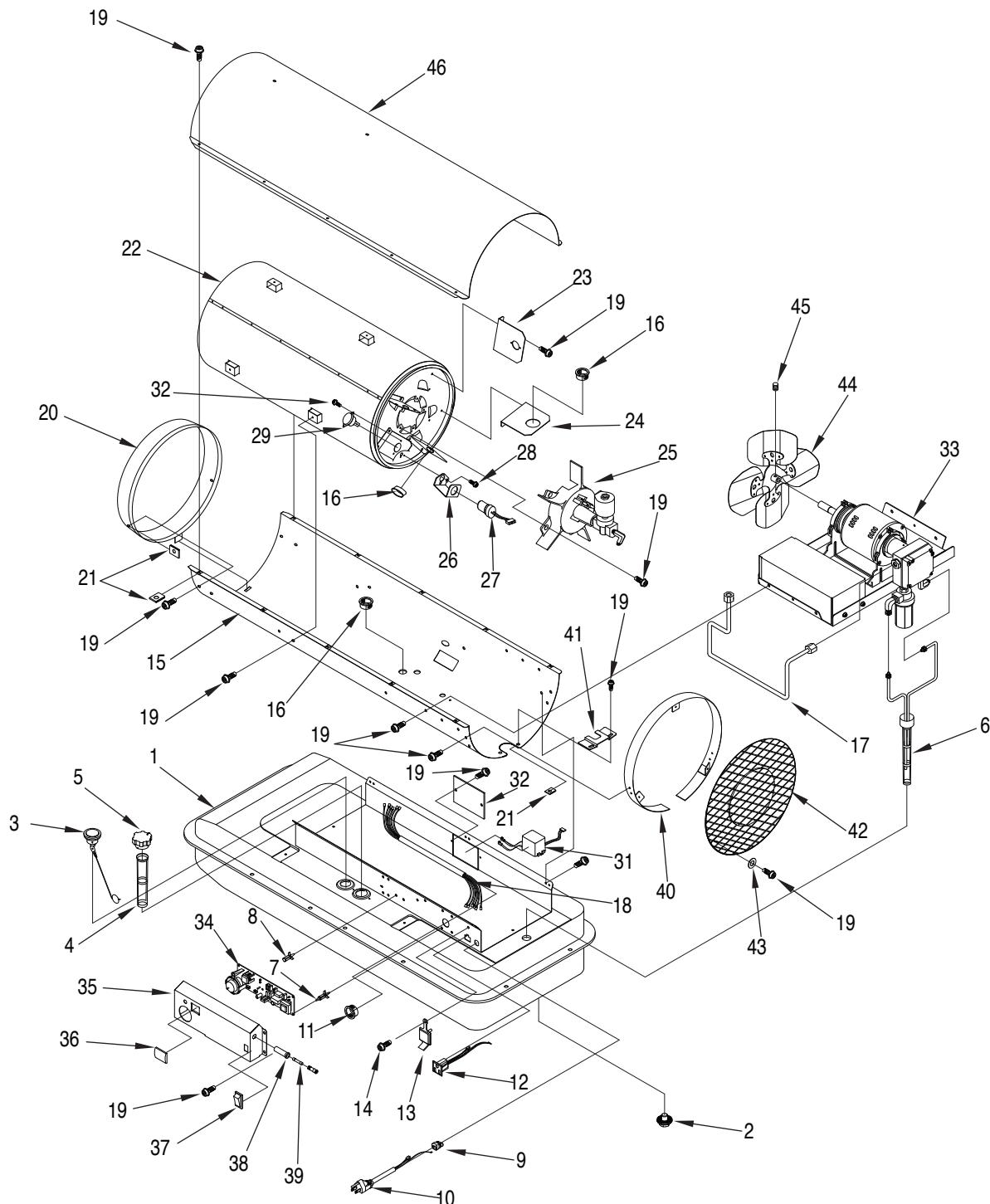


Figure 22 – Repair Parts Illustration for Portable Oil-Fired Heater

For Technical Support or Troubleshooting, Call: 1-800-323-0620

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H**Repair Parts List for Portable Oil-Fired Heater**

Ref. No.	Description	Part No.	Qty.	Ref. No.	Description	Part No.	Qty.
1	Fuel Tank Assembly	2151-0010-00	1	24	Air Deflector	3131-0307-00	1
2	Fuel Drain Bolt	4329-0072-00	1	25	Burner Head Assembly	See Figure 22	1
3	Fuel Gauge	2156-0053-00	1	26	Photocell Bracket	3131-0159-00	1
4	Fuel Filter	3221-0009-00	1	27	Photocell Assembly	SP-KFA1025	1
5	Fuel Cap	2151-0003-00	1	28	Screw (BH1)	4311-0068-00	2
6	Filler Neck Assembly	2155-0007-00	1	29	Temperature Limit Control	38C0-0032-00	1
7	Space Support	3713-0004-00	1	30	Screw (PH2S)	4312-0021-00	2
8	Card Support	3713-0016-00	1	31	Ignitor	39E0-0021-00	1
9	Cord Bushing	3712-0013-00	1	32	Ignitor Cover	3131-0309-00	1
10	Power Cord	3980-0087-00	1	33	Motor and Pump Assembly	See Figure 23	1
11	Bushing Grommet	3231-0121-00	1	34	P.C.B. Assembly	215A-0056-00	1
12	Electric Outlet Assembly	39D0-0780-00	1	35	Cover Display	3121-0587-00	1
13	Cover Outlet	3231-0114-00	1	36	Window Display	3231-0113-00	1
14	Screw-Top Table	4319-0042-00	1	37	Operating Switch	39A0-0209-00	1
15	Lower Shell	3111-0195-01	1	38	Fuse Holder	3930-0012-00	1
16	Bushing Grommet	3712-0004-00	1	39	Fuse	3920-0061-00	1
17	Fuel Line	3740-0031-00	1	40	Guard Safety Assembly	2153-0011-00	1
18	Harness Burner	39D0-0781-00	1	41	Bracket-Filter	3131-0465-00	1
19	Flange Screw	4319-0015-00	26	42	Mesh Guard	3121-0336-00	1
20	Cone-Outside	2153-0012-00	1	43	Impeller Washer	3131-0240-00	3
21	Clip-Nut	3131-0182-00	14	44	Fan Assembly	2154-0021-00	1
22	Combustion Chamber	2152-0037-00	1	45	Bolt Standard Socket	4323-0005-00	1
23	Air Deflector	3131-0306-00	4	46	Upper Shell	3111-0196-01	1

For Repair Parts, call 1-800-323-0620

24 hours a day – 365 days a year

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

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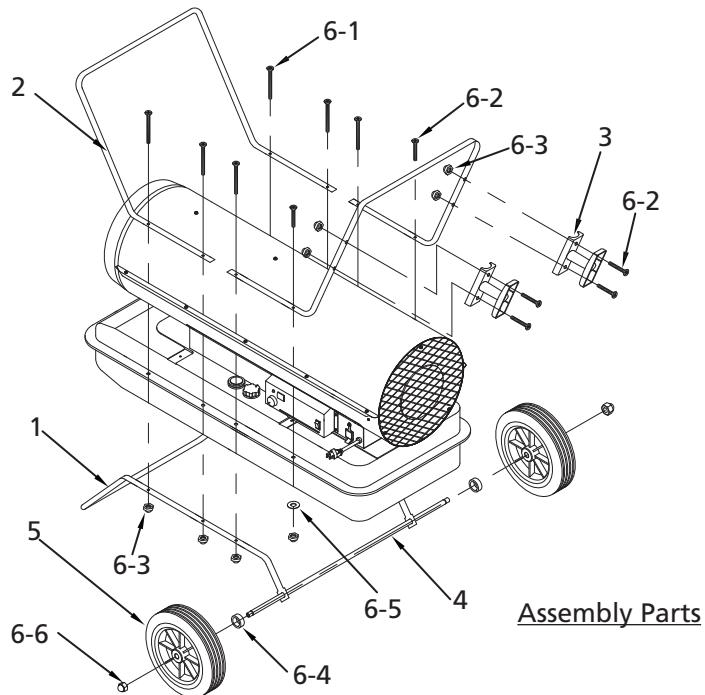


Figure 23 – Repair Parts Illustration for Portable Oil-Fired Heaters

Repair Parts List for Portable Oil-Fired Heaters

Reference Number	Description	Part Number for Model 3VE53H	Quantity
1	Wheel Support Frame	3551-0098-00	1
2	Handle	3551-0036-00	2
3	Cord Wrap	3221-0052-00	2
4	Threaded Axle	3541-0093-00	1
5	Wheel	3720-0004-00	2
6	Hardware Kit	HW-KFA1019	1
6-1	Screw (L)	INCLUDED IN HARDWARE KIT	6
6-2	Screw (S)	INCLUDED IN HARDWARE KIT	6
6-3	Nut	INCLUDED IN HARDWARE KIT	8
6-4	Cap Nut(S)	INCLUDED IN HARDWARE KIT	4
6-5	Bushing	INCLUDED IN HARDWARE KIT	2
6-6	Flat Washer	INCLUDED IN HARDWARE KIT	2
6-7	Cap Nut(L)	INCLUDED IN HARDWARE KIT	2

For Technical Support or Troubleshooting, Call: 1-800-323-0620

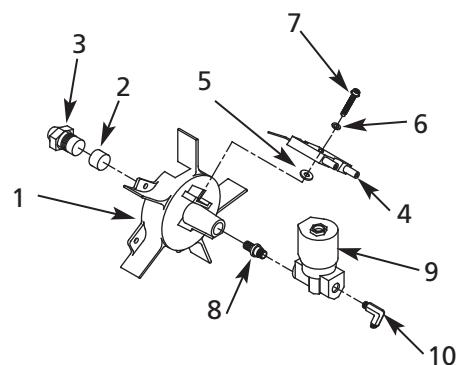
For Repair Parts, call 1-800-323-0620

24 hours a day – 365 days a year

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

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Burner Head Assembly

Figure 24– Repair Parts Illustration for Portable Oil-Fired Heaters

Repair Parts List for Portable Oil-Fired Heaters

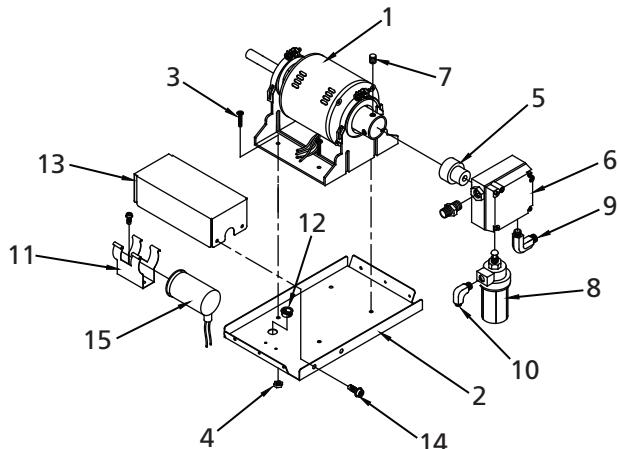
Reference Number	Description	Part Number for Model 3VE53H	Quantity
1	Burner Head	3531-0012-00	1
2	Plug	3541-0060-00	1
3	Nozzle	SP-KFA1024	1
4	Spark Plug	SP-KFA1009	1
5	Fiber Washer	4349-0017-00	1
6	Spring Washer	4342-0009-00	1
7	Flange Bolt	4329-0013-00	1
8	Nipple-Straight	3541-0057-00	1
9	Solenoid Valve	39A0-0084-00	1
10	Elbow Male	3740-0037-00	1

For Repair Parts, call 1-800-323-0620

24 hours a day – 365 days a year

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

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Motor and Pump Assembly

Figure 25 – Repair Parts Illustration for Portable Oil-Fired Heater

Repair Parts List for Portable Oil-Fired Heater

Reference Number	Description	Part Number for Model 3VE53H	Quantity
1	Motor	3970-0081-00	1
2	Support-Motor	3121-0334-00	1
3	Bolt (HH)	4321-0182-00	4
4	Lock Nut	4331-0022-00	4
5	Coupling-Pump	3531-0013-00	1
6	Gear Pump	3740-0026-00	1
7	Bolt-Headless Socket	4323-0004-00	1
8	Filter Oil Assembly	3740-0034-00	1
9	Elbow-Male	3740-0044-00	2
10	Fitting-Straight	3740-0039-00	1
11	Holder-Condensor	3131-0295-00	1
12	Bushing Grommet	3712-0024-00	1
13	Cover Condensor	3121-0338-00	1
14	Flange Screw	4319-0015-00	2
15	Capacitor	3820-0144-00	1

For Technical Support or Troubleshooting, Call: 1-800-323-0620

Model 3VE53HE
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H**Troubleshooting Chart**

Symptom	Possible Cause(s)	Corrective Action
Heater ignites but MAIN PCB assembly shuts heater off after a short period of time. (Indicator lamp is flickering and room temp. display indicates "E1")	1. Wrong pump pressure 2. Dirty fuel filter 3. Dirt in nozzle 4. Dirty photocell lens 5. Photocell assembly not properly installed. (Not seeing the flame) 6. Bad electrical connection between photocell and MAIN PCB assembly 7. Defective photocell 8. Temperature limit safety device is overheated	1. See Pump Pressure Adjustment, page 9 2. Clean Fuel Filter, see page 8 3. Clean Nozzle, see page 7 4. Clean photocell lens, page 8 5. Make sure photocell boot is properly seated in bracket, see page 8 6. Check electrical connections. See Wiring Diagram, page 9 7. Replace photocell, page 7 8. Turn operating switch to "OFF" and allow to cool (about 10 min.). Then turn operating switch to "ON" position.
Heater will not ignite but motor runs for a short period of time. (Indicator lamp is flickering and room temp. display indicates "E1")	1. No fuel in tank 2. Wrong pump pressure 3. Carbon deposits on spark plug and/or improper gap 4. Dirty fuel filter 5. Dirt in nozzle 6. Water in fuel tank 7. Bad electrical connection between ignitor and MAIN PCB assembly 8. Ignitor wire is not attached to spark plug. 9. Defective ignitor 10. Defective solenoid valve (not opening)	1. Fill tank with kerosene 2. See Pump Pressure Adjustment, page 9 3. See Spark Plug, page 7 4. Clean Fuel Filter, see page 8 5. Clean Nozzle, see page 7 6. Flush fuel tank with clean kerosene, page 6 7. Check electrical connections. See Wiring Diagram, page 9 8. Attach ignitor wire to spark plug 9. Replace ignitor 10. Check electrical connections and voltage to solenoid valve. If defective, replace solenoid valve
Fan does not turn when heater is plugged in and power switch is in the "ON" position (Indicator lamp is on or flickering)	1. Thermostat setting is too low 2. Bad electrical connection between motor and MAIN PCB assembly	1. Turn thermostat control knob to a higher setting 2. Check electrical connections. See Wiring Diagram, page 9
(Indicator lamp is flickering and room temp. display indicates "E3")	1. Room Temp. sensor disconnected 2. Sensor Failure	1. Reconnect sensor. See Wiring Diagram, page 9 2. Replace sensor. See Wiring Diagram, page 9
(Indicator lamp is flickering and room temp. display indicates "E2")	Thermostat switch failure	Replace Main P.C.B.
Heater will not turn-on (Indicator lamp is off)	1. No electrical power 2. Blown fuse	1. Check to insure heater cord and extension cord are plugged in. Check power supply. 2. Replace safety fuse on cover display.

For Technical Support or Troubleshooting, Call: 1-800-323-0620



Dayton® Portable Oil-Fired Heater

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DAILY INSPECTIONS

- ◊ General visual inspection of loose or damaged items
 - Tighten any loose Nuts/Bolts due to vibration and normal usage
 - Clear any build-up in fuel filling filter(especially when using diesel) located under the fuel cap
 - Replace filling filter if any rips or tears are present.
 - Inspect Oil filter (pump filter) for debris gathering in the filter bottom (Page 8 – Figure 18)
- ◊ General observations of heater during operation
 - Sound of the heater burning
 - Make sure flame is burning consistently/no sputtering
 - Scent while heater is lit
 - There should be very little smell **will vary depending on fuel type
 - K1 clear kerosene will have virtually no odor while road diesel(#2) may create a more noticeable odor
 - Visual check of flame and nose cone
 - Flame should be a very bright orange to almost yellow in color (visible from the rear of the unit)
 - Nose cone should be glowing a bright red to orange color consistently across the entire surface
 - No smoke, soot and/or ash should be exiting the front of the heater at any time

WEEKLY INSPECTIONS

- ◊ Inspect all fuel supply connections and tighten if necessary (Page 8 – Figures 15-18)
- ◊ Intake to pump filter and bypass lines(re-tighten w/ 3/8" wrench if needed)
 - Output line(3/8" wrench) to solenoid(1/4" wrench)
 - Solenoid to burner head(1/4" wrench)
- ◊ Visually inspect and note any build-up in entire burner area
 - Front and rear of fan blades
 - Lower and upper shell
 - Burner head front(chamber side) and rear
 - Spark plug electrodes
 - Nozzle front(exposed on chamber side of burner head)

** Depending on the heater's environment; some of the following maintenance may be needed earlier than 500 hours.
 ** Situations where dust, debris and/or particulate levels are very high may require maintenance to be performed sooner.
 ** Lower grade and/or quality of fuel may also cause maintenance to be required earlier.
 ** If during weekly inspections you find any extreme situations and/or your daily inspections are resulting in an abnormal sound, flame appearance or odor, please begin the 500 hour maintenance schedule.
 ** When using compressed/pressurized air for cleaning, always direct air the opposite direction of fuel flow.

Model 3VE53H

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500HR INSPECTION/MAINTENANCE

- ◊ Inspection and cleaning of all filters
 - Fuel Filling Filter under fuel cap "Front Line against contaminants".
 - Clean using compressed air or replace
 - Fuel Tank Filter (filler neck assembly) "pump protection" (Page 8 – Figure 17)
 - Clean using compressed air or replace
 - Oil Filter Assy "pump filter" (Page 8 – Figure 18)
 - (If cracks are present, or components are not easily cleaned then replace)
 - Disassemble entire fuel pump clean and reassemble.
 - Filter top and gasket – rinse with fresh fuel oil
 - Fuel filter – rinse with fresh fuel oil
 - Magnet – wipe clean of dirt and debris
 - Filter Bottom – rinse with fresh fuel oil and wipe dry with clean/dry cloth
 - Nozzle Filter (Page 7 – Figure 13)
 - Remove nozzle from burner head using 5/8" socket and unscrew filter from back of nozzle.
 - Rinse clean with fresh fuel oil.
- ◊ Inspect and clean burner head assembly and burner area. (Page 13)
 - Wipe front and rear of fan blades completely clean (Page 7 – Figure 11)
 - Remove and clean burner head components
 - Remove spark plug, clean, and re-gap or replace (Page 7 – Figure 12)
 - Remove excessive build-up with fine grit sand paper
 - Spark plug gap is 0.14"(3.5mm)
 - Remove nozzle, clean or replace – (Page 7 – Figure 13)
 - Remove nozzle using 5/8" socket
 - Tighten to 175~200 inch-pounds
 - Blow compressed air through face of nozzle
 - If clogs are extreme or nozzle is damaged then replace
 - Wipe entire burner head(cast) clean using dry/clean cloth
 - Wipe upper and lower shell clean using dry/clean cloth.
- ◊ Remove photocell and wipe lens clean using dry/clean cloth or cotton swab (Page 8 – Figure 14)
- ◊ Insert pressure gauge into proper pump port and verify pump pressure. Adjust if necessary (Page 9 – Figure 19)
 - 400K – 125 PSI
- ◊ Remove ignitor cover and clean dust and debris build-up from ignitor housing (Page 10 – Ref. 32)
- ◊ Remove Drain Bolt (3/4" socket), drain and flush fuel tank with fresh fuel-oil (Page 6 – Figure 9)

YEAR END/STORAGE

- ◊ Verify all fittings are tight and secure.
- ◊ Make sure all filters are free of debris
- ◊ Be sure any foreign material is completely removed from the entire burner head and burner area
- ◊ Flush(fuel-oil ONLY, NO water) and completely drain fuel tank
- ◊ Store unit in original packaging in a dry and well-ventilated area, the more consistent the temperature the better

Dayton® Portable Oil-Fired Heater

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